

COMMONWEALTH OF KENTUCKY  
BEFORE THE PUBLIC SERVICE COMMISSION

In the Matter of:

A JOINT APPLICATION FOR THE APPROVAL OF	)	
DEMAND-SIDE MANAGEMENT PROGRAMS, A DSM	)	
COST RECOVERY MECHANISM, AND A CONTINUING	)	CASE NO. 93-150
COLLABORATIVE PROCESS ON DSM FOR	)	
LOUISVILLE GAS AND ELECTRIC COMPANY	)	

O R D E R

IT IS ORDERED that Louisville Gas and Electric Company ("LG&E"), the Attorney General, Jefferson County, Metro Human Needs Alliance, People Organized and Working for Energy Reform, Anna Shed, Kentucky Industrial Utility Customers, Louisville Resources Conservation Council, and the Louisville and Jefferson County Community Action Agency (collectively, "Joint Applicants") shall file on or before October 13, 1993, the original and 15 copies of the following information with the Commission, with a copy to all parties of record. Each copy of the data requested should be placed in a bound volume with each item tabbed. When a number of sheets are required for an item, each sheet should be appropriately indexed, for example, Item 1(a), Sheet 2 of 6. Include with each response the name of the witness who will be responsible for responding to questions relating to the information provided. Careful attention should be given to copied material to ensure that it is legible. If any information requested herein has been previously placed in the record, reference may be made to the specific location of said information in responding to this information request.

1. Explain whether the Joint Applicants are planning to update the non-fuel revenue requirement at the end of the three year experimental period. If not, provide a full justification for the decision.

2. Refer to the Joint Applicants' response to Item 6 of the Commission's Order dated September 22, 1993.

a. In order to calculate electric demand and energy savings, explain why the Joint Applicants purchased load shape data from an outside vendor instead of using actual LG&E load research data.

b. Explain why air conditioning load shape data is used since many of the low income participants in the Residential Conservation and Energy Education Program likely do not have air conditioners.

c. Explain how the Collaborative estimated that first line weatherization and insulation materials would decrease the load shape by 9 percent. Explain why a 9 percent reduction would be expected at every point along the load shape.

d. This analysis estimates a constant annual savings of 103 KW and 114,125 kWh. Explain why this program, with its energy efficiency education emphasis, would not be expected to result in annual increases in the level of energy and capacity savings.

e. Refer to page 3. Explain why hour 16, with an hourly peak of 0.744 KW, is identified as "system peak hour."

f. Explain whether the EPRI DSManager data shown on pages 2-3 is the same data purchased from Electric Power Software.

Is this information calculated by EPRI for LG&E using actual LG&E load data?

g. Refer to page 1. Explain how gas commodity savings of 1,692,784 Mcf is used in calculating gas commodity savings on page 5 of Exhibit CE-1 of the Joint Application.

3. Refer to the response to Item 8(a).

a. Explain why an "equal-weighted compound annual average growth rate" is calculated for gas usage per customer, while a regression-derived compound annual average growth rate is calculated for electric usage per customer.

b. The figures in the residential customer column on page 2 appear to be the number of total annual bills. Should this column instead show the average customers during each of these years?

c. In the regression equation used to derive the compound annual growth rate, the dependent variable is the natural log of residential usage per customer and the independent variable is time. Identify the values which are used for the dependent and independent variables in the regression.

4. Identify all integrated resource planning ("IRP") or demand-side management ("DSM") collaboratives which operate without members or representatives from the state public utility regulatory agency.

5. In the response to Items 8(c) and 8(d) it is stated that the log-linear regression model will smooth the results and eliminate the need to temperature normalize the data. Explain how

the log-linear regression model eliminates the need to temperature normalize data.

6. In response to Items 8(c) and 8(d) it is stated that the Commission does not accept temperature normalization. In response to Item 19(b)(3), it is stated that LG&E suggested methodologies to weather normalize the revenues from electric sales in its last two rate cases, and because these proposals were determined to be inappropriate, it is not known what methodology to weather normalize electric sales would be acceptable to the Commission.

a. Indicate where in Case No. 90-158<sup>1</sup> LG&E proposed to weather normalize its electric sales.

b. Do you agree that while the Commission rejected as inaccurate the temperature normalization methodologies proposed in prior LG&E cases, the Commission has never rejected the concept of such an adjustment?

7. In Case No. 10064,<sup>2</sup> the Commission identified several problems with the normalization models proposed by LG&E and an intervenor. Indicate whether LG&E or the Joint Applicants have contacted research organizations such as the Edison Electric Institute or the Electric Power Research Institute to see if normalization methodologies exist which would address the problems identified by the Commission in Case No. 10064.

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<sup>1</sup> Case No. 90-158, Adjustment of Gas and Electric Rates of Louisville Gas and Electric Company.

<sup>2</sup> Case No. 10064, Adjustment of Gas and Electric Rates of Louisville Gas and Electric Company, final Order dated July 1, 1988.

8. Refer to the response to Item 9(b).

a. It is stated that none of the founding members have selected their representatives for the Collaborative. For each of the founding members, identify the individuals who have represented each member during the development of the collaborative process and the Joint Application.

b. Describe the mission and operations of the Louisville Resource Conservation Council and the manner in which it represents the commercial class on the Collaborative.

9. In the response to Item 9(i) it is stated that the Joint Applicants have considered and discussed bylaws for the Collaborative once it is in place. Indicate the status of the Collaborative, as of the date of the response to this Order.

10. In response to Item 12 it is stated, "It is hoped that by having these low income programs in place, it will be less likely for collaborative members that represent low income customers to withhold consensus on DSM programs that may be of great benefit but are generally not available to low income customers." Explain in detail what Collaborative policies or procedures are available to minimize the risk a collaborative member may veto a proposed DSM program on the grounds it does not benefit that particular member or the member's constituents simply don't like the proposed program.

11. Refer to the response to Item 13(a). Describe fully the relationship between LG&E's IRP process and the activities of the proposed DSM Collaborative. Describe the role the Collaborative

members will have in LG&E's IRP process. For instance, will LG&E present to the Collaborative those programs that were found to be cost-effective through the IRP process or will the Collaborative decide which programs will be analyzed in LG&E's IRP process?

12. Will low income customers be enrolled on the Experimental Energy Conservation Rate without first receiving weatherization and other conservation measures and energy efficiency education? If so, explain how these customers will be affected by the new rate if they are unable to make the necessary structural and behavioral modifications on their own.

13. In response to Item 14(b) the Joint Applicants discuss why an electric usage per customer growth rate was included in the proposed decoupling mechanism.

a. Indicate whether the electric usage per customer growth component growth factor in effect re-couples revenues with sales. Explain the reasons supporting the response.

b. If successfully implemented DSM programs result in reductions in customer usage or a stabilization of customer usage, explain in detail why it is appropriate to include a usage per customer growth rate component in the decoupling mechanism.

14. Concerning the proposed shareholder incentive, if the rate of return on common equity reflects the appropriate return on shareholder investment, explain in detail why the shareholder incentive rate should be different from the authorized rate of return on common equity.

15. Provide the same analysis as shown in response to Item 19(a) for residential gas customers. Include all pertinent workpapers and narrative explanations.

16. In response to Item 19(a) the Joint Applicants showed the results that would have been produced for calendar years 1991 and 1992 if the proposed decoupling mechanism had been in effect since January 1, 1991. Step 3 of this calculation, as shown on page 2, determined a test year revenue per customer. Electric Tariff Sheet 23-C, 3rd. revision, states in part, "[T]he non-variable revenue requirement will be multiplied by the factor obtained by dividing the number of customers at the end of the twelve-month period by the number of residential customers at the end of the test year in the most recent general rate case. . . ." While the approaches may be mathematically identical, the calculation shown in the response does not comply with the proposed tariff language. If the proposed decoupling mechanism is approved for residential customers, indicate which calculation approach will be followed by LG&E and explain why the approach is preferred.

17. In response to Item 21(b) it is stated that, "the general body of ratepayers will benefit from reduced uncollectables, which are included in their rates, if low income customers are better able to pay their bills because of DSM efforts."

a. Indicate whether the Joint Applicants agree that the level of uncollectables included in rates is determined in general rate case proceedings.

b. Explain in detail how this is a benefit since the level of uncollectables currently in LG&E's rates was determined in Case No. 90-158, and the level will not change until LG&E's next general rate case.

18. In response to Item 29 it is stated that the Collaborative will select DSM programs based on cost/benefit tests. Specifically identify these cost/benefit tests. If the cost/benefit tests are other than the Total Resources Cost ("TRC") test and the Ratepayer Impact Measure ("RIM") test, include a description of the tests.

19. The response to Item 13(b) refers to the TRC test and the RIM test as methods for screening prospective DSM programs for cost effectiveness. Have the proposed DSM programs been subjected to these tests? If so, provide the test results for these DSM programs. If not, explain why these tests were not performed.

20. The response to Item 21(b) describes some of the externalities associated with the proposed DSM program, such as a reduction in air pollution. The response to Item 14(d) indicates that decoupling removes revenue variability due to factors including marketing initiatives. LG&E further indicates that it "is not willing to commit to foregoing the upside revenue potential for all customer groups at this time."

a. Reconcile LG&E's "marketing initiatives" with its DSM efforts.



b. If residential DSM programs result in available capacity for LG&E to market elsewhere, does this not eliminate "reduction in air pollution" as an externality?

c. If residential DSM programs result in available capacity for LG&E to market elsewhere, justify the "lost revenue" adjustment.

d. Will factors such as non-homogenous cost structures among industrial customers preclude acceptability of industrial decoupling? If not, what conditions would LG&E find acceptable in order to consider industrial decoupling?

21. The response to Item 17(c) explains why the experimental rate is only available to customers who receive both gas and electric services. Are the weatherization services proposed by this DSM plan available to all-electric low income customers? If not, why not?

22. The response to Item 21(i) suggests that the cost/benefit analysis contained in Exhibit CE-1 is from an LG&E stockholder perspective. Provide a similar cost/benefit analysis of the proposed residential low-income DSM program from a ratepayer perspective. For all costs and benefits, identify whether participants, non-participants, or both, will bear the burden of the cost or receive the benefit. Include the effects of the proposed DSM cost recovery rate elements. Provide all assumptions, calculations, and workpapers.

23. The response to Item 6, on page 3, shows the "Calculation of Energy Reduction of the Conservation Program" which results in

114,125 KWh annually, including savings in distribution losses. The response to Item 21(i), on page 2, describes Electric Production Cost Savings as being a function of hourly marginal energy costs and the difference in end-use load shapes before and after DSM. Exhibit CE of the Joint Application indicates that "Electric Production Cost Savings" is \$1990 for 1994.

a. Using the information above, would it be correct to calculate the "average" marginal cost of energy in 1994 to be 1.744 cents per kWh? Explain

b. The amounts shown on Exhibit CE-1, page 5, in the column headed "Electric Production Cost Savings," are calculated each year using the formula shown in response to Item 21(i), on page 2.

(1) Provide the data used in making these calculations and a detailed demonstration of how the amounts are calculated.

(2) Explain fully why these amounts escalate each year. Provide and justify any growth factors used in the escalation. Describe which elements in the calculation are being escalated (i.e., kWh savings, marginal cost of energy).

24. The response to Item 21(i), on page 2, states "With one exception, Column 9 (Avoided Capacity Costs) was calculated employing the same methodology that the Company has used to calculate the avoided capacity cost that it will pay qualifying PURPA facilities. That difference is that neither expansion plan assumes any form of DSM."

a. Are the expansion plans referred to above the "W/out Cogen." and "W/Cogen" scenarios contained in Attachment A on page 7 of the response to Item 21(i)?

b. The above statement suggests that the avoided capacity costs were calculated using the same methodology that is used to calculate the avoided capacity cost that LG&E will pay qualifying PURPA facilities, but adjusted for DSM. If this is correct, explain how the adjustment was made for DSM. If incorrect, clarify.

c. Provide a complete explanation of how the avoided capacity cost for qualifying PURPA facilities is calculated. Show all supporting calculations and assumptions. If any computer programs were used to derive any of the numbers, fully explain how the programs derived the numbers.

d. Identify and describe each cost element which was used to calculate the "Scenario Costs PVRs" for both the 0 MW Case and the 75 MW Case shown on page 8 of the response to Item 21(i) and show the complete calculation of how the revenue requirements were determined. Explain how the "Overall Weights" were determined.

e. Explain why the avoided costs shown on page 5 of Exhibit CE-1 and calculated on page 7 of the response to Item 21(i) are expected to remain constant over the entire 1993-2023 planning period.

25. Item 25 requested analyses showing the amounts which would be required to be spent on DSM programs in order to delay

capacity additions. How do you propose to spend only part of the DSM investments, as suggested by the proration of "Est. Program Cost of Conservation Programs"?

26. The response to Item 12 contains a paper written by Nancy Brockway of the National Consumer Law Center, entitled "The Low-Income Customer as a Non-Participant in DSM: What Is to Be Done?" On page 16 she states, "The concept of using DSM programs as a financing and arranging vehicle to overcome market barriers for the sake of participating ratepayers, who then pay the costs back in rates over time, should be explored."

a. Was any type of participant payback explored by LG&E? If yes, explain fully. If no, why not?

b. Is it feasible to require some type of participant payback to mitigate the impacts on non-participating ratepayers? Explain.

27. Using the assumptions contained in Exhibit CE of the Joint Application:

a. Provide an estimate of the impact of the DSM program on an average residential non-participant's bills for each year that the DSM rate adjustment will be in effect. Distinguish between customers with gas and electric heat. Show all rates and billing determinants.

b. Provide an estimate of the impact of the DSM program on an average residential participant's bills for each year that the DSM rate adjustment will be in effect. Show all rates and billing determinants.

28. Estimate the dollar amount per Kwh and per Mcf of the total DSM recovery component ("DSMRC") applicable to Rate Schedules R, GS, LC, LC-TOD, LP and LP-TOD beginning on January 1 of 1995, 1996 and 1997. Provide all assumptions under an ideal scenario and a worst case scenario with normal weather for the initial DSM programs.

29. How will expected sales be determined in the DSMRC?

30. Describe the impact that implementation of the programs will have on the calculation of LG&E's expected gas cost and the total gas supply cost portion of its gas rates.

31. Concerning the Residential Conservation and Energy Education Program, must the customer own his own home in order to participate? If it is rental property, is the property owner's consent required for weatherization measures?

32. Refer to the response to Item 11. Do any members of the Collaborative see any potential for conflicts of interest or ethical questions to be raised by virtue of the Collaborative paying some costs which are then recovered from utility ratepayers? (e.g., training and education of employees of other entities.)

33. Refer to the response to Item 7. Provide a thorough explanation of the monitoring system developed by Project Warm for the Energy Conservation and Education Program. How has the system been evaluated and revised as a result of the pilot project?

34. During the 3 year experimental program, how will new DSM programs be presented to the Commission for review? Will revisions

only be proposed as part of the annual filing or may they be presented at any time?

35. Refer to the response to Item 12. Describe Project Warm's pilot program (i.e. when the program began and ended, the number of program participants, how eligibility was determined, etc.).

36. Refer to the response to Item 17(a) and Electric Tariff Sheet 2-A. Will the Experimental Energy Conservation Rate be available only to LIHEAP recipients or would it include those verified by the Community Action Agency or similar agency as eligible for LIHEAP?

37. Identify by individual participant, the expenses to date of participation in the Collaborative efforts, including any costs of consultants or experts.

38. Refer to the response to Item 12.

a. Describe the existing infrastructure that will allow the immediate implementation of the low income DSM programs.

b. Describe the infrastructure needed to implement commercial DSM programs.

39. Refer to the responses to Items 12 and 24(d). Are the "customer representatives" who will review program costs and Collaborative expenses the Collaborative members? If not, explain who the "customer representatives" are.

40. Refer to the response to Item 43. Explain why a cost/benefit analysis was performed only on the Energy Conservation

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